

Fig.1

Fig.2

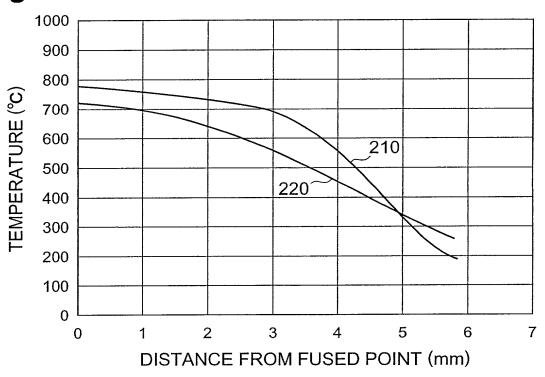
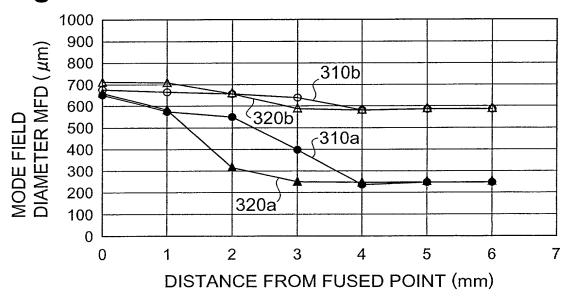


Fig.3



# Fig.4A

DISTANCE FROM FUSED POINT	1 <sup>st</sup> OPTICA	L FIBER 10	2 <sup>nd</sup> OPTICAL FIBER 20		
(mm)	MFD(μm)	RATIO OF CHANGE	MFD(μm)	RATIO OF CHANGE	
0	13.1		13.5		
1	11.5	1.6	13.4	0.1	
2	11.0	0.5	13.2	0.2	
3	8.0	3.0	12.8	0.4	
4	4.8	3.2	11.6	1.2	
5	4.9	0	11.7	0	
6	4.9	0	11.7	0	

#### Fig.4B

DISTANCE FROM FUSED POINT	1 <sup>st</sup> OPTICA	L FIBER 10	2 <sup>nd</sup> OPTICAL FIBER 20		
(mm)	MFD(μm)	RATIO OF CHANGE	MFD(μm)	RATIO OF CHANGE	
0	13.3		14.3		
1	11.7	1.5	14.3	0	
2	6.5	5.3	13.2	1.1	
3	5.0	1.4	11.9	1.3	
4	5.0	0	11.6	0.3	
5	4.9	0.1	11.7	0	
6	4.9	0	11.7	0	

Fig.5A

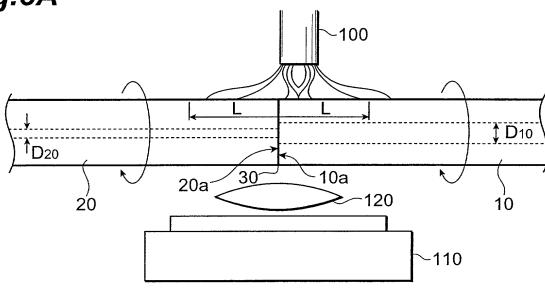


Fig.5B

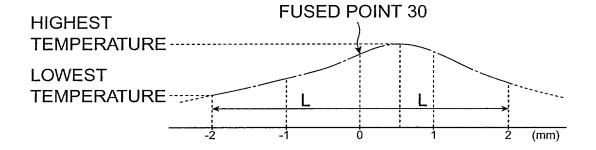


Fig.6A

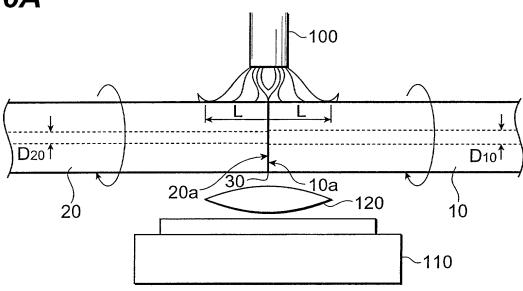
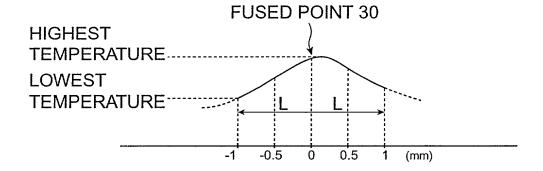


Fig.6B



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	SPLICE	(dB)	0.15	0.14	0.31	0.17	0.17	0.25	0.11	0.15	0.21	-	0.16	0.16	0.75	0.16 0.22 0.25 0.15	0.16 0.25 0.25 0.15 0.17	0.16 0.25 0.15 0.17	0.22 0.25 0.25 0.15 0.17 0.13	0.15 0.25 0.25 0.15 0.13 0.19
	[7	(mm)	3.7	3.3	2.9	4.0	3.0	3.0	3.1	3.0	3.0		3.5	3.5	3.5	3.5 3.6 3.6	3.5 3.6 4.1 4.2 4.2	3.5 3.6 4.1 4.2 4.2	3.5 4.4 4.2 4.2 4.3	3.5. 6.2. 7.4. 1.2. 1.3. 1.3. 1.3. 1.3. 1.3. 1.3. 1.3
0	(D2(0)-D2(3))/2	(mm/mm)	1.7	2.0	2.0	2.3	2.5	2.5	2.8	2.9	2.9		2.5	2.5	2.5	2.5	2.5	2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5	2.5 2.4 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5	2.
L FIBER 2	D2(3)	(m m)	6.2	5.3	5.1	5.3	4.7	4.7	5.0	4.9	4.9		6.0	0.9	0.0	6.0 6.4 7.3	6.0 6.4 7.3 8.0	6.0 6.4 6.4 7.3 8.0	6.0 6.4 6.4 7.3 8.0 7.0	6.0 6.4 6.4 7.3 8.0 7.0 3.0
2nd OPTICAL FIBER 20	(D2(0)-D2(z))/2	(mm/m n/	1.4	6.0	2.5	1.5	1.9	2.1	1.1	1.5	1.6	,	 S.	2.1	2.1	2.1	2.1 2.1 1.3 1.6	2.1 2.1 1.3 1.6 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.1	2.1.2.2.1.1.3.1.1.3.1.4.1.4.1.5.1.4.1.5.1.4.1.3.1.4.1.4.1.4.1.4.1.4.1.4.1.4.1.4	2.1.2.2.1.3.1.4.1.9.1.9.1.9.1.9.1.9.1.9.1.9.1.9.1.9
2	D2(2)	(m m)	8.5	9.3	6.2	9.3	8.5	8.0	11.3	10.5	10.3	ασ	2	9.3	9.3 6.3	9.3 9.3 12.0	9.3 9.3 12.0	9.3 9.3 12.0 11.4	9.3 9.3 12.0 11.4 10.3 7.0	9.3 9.3 12.0 11.4 10.3 7.0 6.0
	, D20	(m m)	5.1	5.1	5.1	4.6	4.6	4.6	4.8	4.8	4.8	4.8		4.8	4.8	4.8 4.8 7.0	4.8 4.8 7.0 7.0	4.8 4.8 7.0 7.0 7.0	4.8 7.0 7.0 7.0 2.0	4.8 7.0 7.0 7.0 2.0 2.0
	(D <sub>1</sub> (0)-D <sub>1</sub> (3))/3	(mm/m <i>t</i> )	0.5	0.5	9.0	0.7	9.0	9.0	0.5	9.0	9.0	0.5		9.0	0.6 0.6	0.6 0.3	0.6 0.6 0.3 0.4	0.6 0.3 0.4 0.4	0.6 0.3 0.4 0.4 0.4	0.6 0.3 0.4 0.4 0.4 0.4
ER 10	, D1(3)	(m m)	9.8	9.6	9.3	10.0	10.5	10.5	11.9	11.8	11.7	11.9		11.7	11.7	11.7 11.7 13.5	11.7 13.5 13.4	13.5	11.7 13.5 13.4 13.4 8.6	11.7 11.7 13.4 13.4 8.6 8.4
OF LICAL FIBER 10	(D1(0)-D1(z))/2	(mm/mm)	0.4	0.4	9.0	6.0	9.0	9.0	0.5	0.7	0.8	0.5		0.7	0.7	0.7	0.7	0.7	0.7 0.4 0.4 0.3	0.7 0.4 0.3 0.3
1st Op	D1(2)	(m m)	10.4	10.3	6.6	10.5	10.9	11.1	12.5	12.2	12.0	12.5		12.2	12.2	12.2 12.1 13.8	12.2 12.1 13.8 13.8	12.2 13.8 13.8 13.8	12.2 13.8 13.8 13.8 9.2	12.2 13.8 13.8 9.2 9.2
	D10		9.3	9.3	9.3	10.0	10.0	10.0	11.5	11.5	11.5	11.5		11.5	11.5	11.5	11.5	11.5 13.0 13.0	11.5 13.0 13.0 8.0	11.5 13.0 13.0 8.0 8.0
	D <sub>1</sub> (0),D <sub>2</sub> (0)	( m m)	11.2	11.2	11.2	12.2	12.2	12.2	13.5	13.5	13.5	13.5		13.5	13.5 13.5	13.5 13.5 14.5	13.5 7.5 7.5 7.5 7.5 7.5 7.5 7.5	13.5 14.5 14.5 14.5 15.5 16.5 17.5 17.5 17.5 17.5 17.5 17.5 17.5 17	13.5 14.5 14.5 9.7	13.5 14.5 14.5 9.7
	1st EMBODI- MENT	AMPLE NO.	-	2	3	4	5	9	7	8	6	19		11	11	13 13	11 12 14	11 12 11 12 11	11 13 12 15 16 16 17	11 12 17 17 17 17 17 17 17 17 17 17 17 17 17

		1st OP7	1st OPTICAL FIBER 10	FR 10	21	d OPTICA	2nd OPTICAL FIRER 20		
2nd EMBODI- MENT	D1(0),D2(0) (μm)	D10 (μ μ)	D <sub>1(1)</sub> (μ m)	(D1(0)-D1(1))/1 (# m/mm)	D <sub>20</sub> (μ m)	D <sub>2</sub> (1) (μm)	(D2(0)-D2(1))/1 (µ m/mm)	L2 (mm)	SPLICE LOSS
JAIMIPLE NO.	6.0	4.5	4.8	9.0	4.5	4.6	1.4	1.0	0.16
2	0.9	5.0	5.3	4:0	4.5	5.3	0.7	1.5	0.13
က	13.5	13.0	13.2	0.2	11.5	12.5	1.0	2.0	0.10
4	13.5	13.0	13.2	0.2	11.5	11.9	1.6	1.4	0.25
5	4.0	3.8	3.9	0.1	2.0	2.4	1.6	1.3	0.26
9	4.0	3.8	3.9	0.1	2.0	2.9	1.1	1.8	0.11

3rd EMBODIMENT SAMPLE NO.	TEMPERATURE (°C) AT FUSED POINT DURING HEATING	TEMPERATURE (°C) AT POSITION SEPARATED BY 2 mm FROM FUSED POINT IN 1st OPTICAL FIBER 10	TEMPERATURE (°C) AT POSITION SEPARATED BY 2 mm FROM FUSED POINT IN 2nd OPTICAL FIBER 20	TEMPERATURE DIFFERENCE (°C)	SPLICE LOSS (dB)
1	780	720	730	60	0.10
2	780	670	680	110	0.22
3	900	810	820	90	0.16
4	900	850	860	50	0.08
5	900	800	810	100	0.18
6	950	910	920	40	0.07
7	950	870	880	80	0.11
8	950	800	810	150	0.32

4th EMBODIMENT SAMPLE NO.	TEMPERATURE (°C) AT FUSED POINT DURING HEATING	TEMPERATURE (°C) AT POSITION SEPARATED BY 1 mm FROM FUSED POINT IN 1st OPTICAL FIBER 10	TEMPERATURE (°C) AT POSITION SEPARATED BY 1 mm FROM FUSED POINT IN 2 <sup>nd</sup> OPTICAL FIBER 20	TEMPERATURE DIFFERENCE (°C)	SPLICE LOSS (dB)
1	780	720	730	60	0.17
2	780	690	700	90	0.23
3	900	830	850	70	0.22
4	900	850	860	50	0.14
5	900	830	840	70	0.24
6	950	910	920	40	0.10
7	950	870	880	80	0.25
8	950	810	820	140	0.33

5th EMBODIMENT SAMPLE NO.	DISTANCE (mm) FROM POSITION YIELDING HIGHEST HEATING TEMPERATURE TO FUSED POINT POSITION	TEMPERATURE (°C) AT FUSED POINT DURING HEATING	TEMPERATURE (°C) AT POSITION SEPARATED BY 1 mm FROM FUSED POINT	SPLICE LOSS (dB)
1	-6	470	350	1.31
2	-5	560	470	0.96
3	-4	620	560	0.72
4	-3	680	620	0.48
5	-2	720	680	0.29
6	-1	750	720	0.16
7	0	780	760	0.10
8	1	760	720	0.17
9	2	720	660	0.32
10	3	660	610	0.50
11	4	610	550	0.73
12	5	550	480	0.91
13	6	400	350	1.20

6th EMBODIMENT SAMPLE NO.	DISTANCE (mm) FROM POSITION YIELDING HIGHEST HEATING TEMPERATURE TO FUSED POINT POSITION	TEMPERATURE (°C) AT FUSED POINT DURING HEATING	TEMPERATURE (°C) AT POSITION SEPARATED BY 1 mm FROM FUSED POINT	SPLICE LOSS (dB)
1	-3	650	610	0.55
2	-2.5	680	650	0.44
3	-2	710	680	0.41
4	-1.5	730	710	0.37
5	-1	740	730	0.23
6	-0.5	750	740	0.16
7	0	760	750	0.08
8	0.5	750	720	0.17
9	1	720	690	0.26
10	1.5	690	670	0.36
11	2	670	650	0.43
12	2.5	650	620	0.48
13	3	620	350	0.58

7th EMBODIMENT SAMPLE NO.	TEMPERATURE (°C) AT FUSED POINT DURING HEATING	TEMPERATURE (°C) AT POSITION SEPARATED BY 2 mm FROM FUSED POINT IN 1st OPTICAL FIBER 10	TEMPERATURE (°C) AT POSITION SEPARATED BY 2 mm FROM FUSED POINT IN 2nd OPTICAL FIBER 20	TEMPERATURE DIFFERENCE (°C)	SPLICE LOSS (dB)
1	1320	1260	1270	60	0.07
2	1250	1050	1070	200	0.34
3	1120	1050	1060	70	0.13
4	1060	950	960	110	0.22

7th EMBODIMENT SAMPLE NO.	DISTANCE (mm) FROM POSITION YIELDING HIGHEST HEATING TEMPERATURE TO FUSED POINT POSITION	TEMPERATURE (°C) AT FUSED POINT DURING HEATING	TEMPERATURE (°C) AT POSITION SEPARATED BY 1 mm FROM FUSED POINT	SPLICE LOSS (dB)
11	-6	930	910	1.01
2	-5	990	930	0.7
3	-4	1050	990	0.65
4	-3	1120	1050	0.48
5	-2	1170	1120	0.27
6	-1	1220	1170	0.15
7	0	1260	1220	0.10
8	1	1210	1180	0.16
9	2	1180	1120	0.34
10	3	1120	1060	0.60
11	4	1060	1000	0.75
12	5	1000	950	0.89
13	6	950	900	1.09